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EXAMINER

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments, see Remarks, filed 5/7/10, with respect to the rejection(s) of claim(s) 1-3, 5-7, 9, 10, 12-17, 19-22 and 24-26 under Office Action dated 1/12/10 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of amended claim.

In response to applicant argument, in particular, Calvignac does not describe/suggest the distinctive feature of Applicant's invention, namely\_ - the feature of performing statistic analysis of data base and utilizing frequency of appearing specific combinations of VC/VP parameters in the data base (hash table) for discard decisions (see Calvignac et al. and Nishino et al.).

In response to applicant arguments, Nothing is said in Calvignac about making any statistics of records in the hash table, and/or about utilizing frequency of appearing various VC/VP combinations for decisions of discard as those terms are used in the present claimed invention. The only "statistics" mentioned by Calvignac is his estimate of probability of a hash collision for N records in the table being a probability of VCCs simultaneously in transit (see column 7, line 45). Such an estimate is totally different from Applicant's statistics: it cannot and does not serve for making any discard decisions, but just exists as an estimate (see Calvignac et al. and Nishino, Calvignac disclose hash table for discarding frames, column 7 lines 18-29; also newly cited

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reference Nishino disclose VCI/VPI parameters for discarding, see column 10 lines 58-67 and column 11 lines 1-3).

In response to applicant argument, Contrary to Calvignac, Applicant's invention makes statistical analysis of the data base to note which packets (which VCCs) are most frequent in the data base at a specific VP layer, and discard them. Due to that analysis, the inventive method is capable of coping with congestion situations by helping to decrease the jam cleverly, namely by deleting long massive and thus more frequent VCs, and not damaging other traffic (see newly cited reference Nishino which maintains VCI/VPI and make a decision of the frequency of VCI/VPI by comparing or analyzing and making a discard decision, see column 10 lines 58-67 and column 11 lines 1-3).

### ***Allowable Subject Matter***

1. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-3, 6, 7, 9, 14-17, 19-22 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calvignac et al. (U.S. Patent No. 6,044,079) in view of Nishino et al. (U.S. Patent No. 5,375,121).

**For claims 1, 22 and 26**, Calvignac et al. disclose a method of handling ATM traffic comprising one or more Virtual Path Connections (VPCs) being streams of packets of AAL5 type composed of ATM cells, the method comprising handling said traffic at a network node at VP-layer being the layer of VPCs, wherein said node is

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initially unaware about type of VC services inside a Virtual Path Connection VPC (see column 4 lines 50-55), the method including: providing a database (see column 7 lines 18-23), monitoring each of said cells incoming the node and determining at least VC-layer and VP-layer parameters of a cell being monitored (see Figure 5 (74); column 7 lines 24-25, data cells are searched or monitored), processing information on said determined parameters (see Figure 5, column 8 lines 32-37), registering the processed information concerning each of said cells in the database, by using the registered information, forming statistical data with respect to at least combinations of the VC-layer and VP-layer parameters of the packets being handled at the node, so as to make the network node, handling the ATM traffic at VP-layer, aware about nature and behavior of various AAL5 streams in a particular VP connection (see Figure 5 (74), and analyzing the statistical data, performing an AAL5 .packet discard policy at the VP layer by making decisions on possible discard of the cells being monitored, said decisions depending on results of analysis of the statistical data, thereby taking into account frequency of appearance, in the database, of a combination of VC-layer and VP-layer parameters of a particular cell being monitored (see column 8 lines 20-24, Figures 7A and 7B).

Calvignac et al. disclose all the subject matter but fails to mention explicitly discarding based on frequency of VCI/VPI parameters stored in a database and analyzing VCI/VPI parameters. However, Nishino et al. from a similar field of endeavor disclose discarding based on frequency of VCI/VPI parameters stored in a database and analyzing VCI/VPI parameters (see column 10 lines 58-67 and column 11 lines 1-3, comparing or analyzing VCI/VPI parameters stored in the database and decision making of discarding

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packets). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Nishino et al. discard scheme into Calvignac et al. discard policy. The motivation of doing this is to discard packets when the identical values are not found in the database (see column 11 lines 1-3).

**For claim 2**, Calvignac et al. disclose wherein each of said packets belongs to a particular VCC (Virtual Channel Connection and a particular VPC (Virtual Path Connection), and wherein each said packet comprises a number of ATM cells, and for each said packet, each of the cells have a same value of VC-index (VCI) and the a same value of VP-index (VPI), the method comprises: determining said VC-layer and VP-layer parameters by determining VPI and VCI values of the cell (see column 7 lines 18-30); and registering the processed information per each of the monitored cells in the database, to allow judging about VCCs in a particular VP connection and thereby enabling awareness of the network node about VCCs at the VP layer and frequency of their appearance in the ATM traffic being handled (see Figure 6, VCC hash table register the cell information).

**For claim 3**, Calvignac et al. disclose wherein the node has multiple ATM Interfaces, the method comprises providing one or more said databases for respectively serving a number of the multiple ATM Interfaces (see column 7 lines 21-22, column 3 lines 4-8).

**For claim 6**, Calvignac et al. disclose further comprising monitoring each of the incoming ATM cells in respect of "end of packet" indication and, based on the presence

or absence of said indication, complementing the database with a status of the VCC under monitoring to which the cell being registered belongs (see column 7 lines 24-27).

**For claim 7**, Calvignac et al. disclose wherein the step of forming the statistical data is performed by building a table arranged for N entries assigned to N different VCCs, wherein each entry registers a number of fields assigned for at least the following purposes: indicating a VPI value, indicating a VCI value, a counter of "own cells", a counter of "other cells", AAL5 packet status (see Figure 6, VCC Hash Table).

**For claim 9**, Calvignac et al. disclose wherein the step of processing the VC-layer and VP-layer parameters is performed by applying an arbitrary function  $f(VPI, VCI) = n$  ( $n=1 \dots N$ ) to values of VPI and VCI of each of the incoming ATM cells, wherein the value n is a natural number between 1 and N and represents the entry number in the database to which the incoming ATM cell is registered (see column 9 lines 48-55).

**For claim 14**, Calvignac et al. disclose Begin Of Packet - where the monitored VCC starts transferring a new packet, in case the previous ATM cell belonging to the VCC under monitoring carried an "End Of Packet" indication (see column 7 lines 62-65); In Packet - where the monitored VCC is in the middle of the AAL5 packet transmission (see column 10 lines 7-18).

**For claim 15**, Calvignac et al. disclose further comprising indicating additional status options for informing whether the current VCC is already under a packet discard process; said status options being either PD (partial discard) or FD (full discard) (see column 4 lines 39-49).



**For claim 16**, Calvignac et al. disclose a method of AAL5 packets discard at a VP- layer, with respect to said packets handled at a network node according to the method according to Claim 1 (see column 8 lines 20-27), wherein the step of making said decisions comprises the following operations: detecting a new congestion event in the network while monitoring a cell belonging to a particular Virtual Channel Connection (VCC), based on the results of analysis of the statistical data, deciding whether said particular VCC is suitable for discarding, if yes, discarding cells of the VCC according to a selected discard policy, if not, repeating said operations with respect to a new incoming cell (see column 7 lines 18-30, Figures 7A and 7B). Calvignac et al. disclose all the subject matter but fails to mention explicitly discarding based on frequency of VCI/VPI parameters stored in a database and analyzing VCI/VPI parameters. However, Nishino et al. from a similar field of endeavor disclose discarding based on frequency of VCI/VPI parameters stored in a database and analyzing VCI/VPI parameters (see column 10 lines 58-67 and column 11 lines 1-3, comparing or analyzing VCI/VPI parameters stored in the database and decision making of discarding packets). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Nishino et al. discard scheme into Calvignac et al. discard policy. The motivation of doing this is to discard packets when the identical values are not found in the database (see column 11 lines 1-3).

**For claim 17**, Calvignac et al. disclose if the VCC is not registered in the database, making a decision not to discard the cell (see column 11 lines 15-25), and if

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the VCC is registered in the database, making a decision to discard the cell (see column 10 lines 45-56, Figures 7A and 7B).

**For claim 19**, Calvignac et al. disclose further comprising indicating, in the database, status of the VCC being monitored so as to distinguish a "begin packet" status and an "in packet" status, the method also comprises checking the status and depending on the status "in packet" or "begin of packet", applying the following discard decisions: when the status is "begin of packet", performing a Full Discard policy (see column 10 lines 7-18); when the status is "in packet", performing a Partial Discard policy (see column 11 lines 26-28)

**For claims 20 and 21**, Calvignac et al. disclose wherein the step of making decisions further includes a check whether cells of the particular VCC are already under discard, and if yes, repeating the method with respect to the VCC of the next incoming cell in case the congestion event persists; further comprising a step of forecasting an expected congestion event, and if said expected event is forecast, a discard decision is made for the incoming VCC which is considered, and performed on the basis of status "begin of packet" and by applying a Full Discard policy (see column 10 lines 16-18, packet discard field to forecast congestion).

**For claims 24 and 25**, Calvignac et al. disclose being a Digital Subscriber Line Access Multiplexer (DSLAM) (see Figure 1, ATM switch).

6. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calvignac et al. (U.S. Patent No. 5,999,518) in view of Nishino et al. (U.S. Patent No.

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5,375,121) as applied to claims 1,2,3 and 7 above, and further in view of Chiu et al. (U.S. Patent No. 6,597,689).

**For claims 5 and 10**, Calvignac et al. disclose the method also comprising monitoring each of incoming cells from the point of that additional parameter (see column 6 lines 22-40), processing the additional parameter together with said parameters (see column 8 lines 32-35) and registering result of the processing in a common database for serving at least a number of the multiple ATM interfaces (see Figure 5, Hash table). Calvignac et al. and Nishino et al. disclose all the subject matter but fails to mention comprising an additional step of indicating a particular ATM Interface for each ATM cell received there-through, by an additional parameter being a unique ATM Interface index (Ifindex). However, Chiu et al. from a similar field of endeavor disclose comprising an additional step of indicating a particular ATM Interface (see column 62 lines 5-8), each ATM cell received there-through (see column 17 lines 13-28), by an additional parameter being a unique ATM Interface index (Ifindex) (see column 80 lines 12-23). Thus, it would have been obvious to one ordinary skill in the art at the time invention was made to include Chiu et al. Ifindex parameter into Calvignac et al. and Nishino et al. statistics collection. The method can be implemented in the software table. The motivation of doing this is to identify each port in a node that originates proxy call.

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7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Calvignac et al. and Nishino et al. as applied to claims 1, 2 and 7 above, and further in view of Soirinsuo et al. (U.S. Patent No. 6,148,001).

**For claim 12**, Calvignac et al. and Nishino et al. disclose all the subject matter but fails to mention wherein the fields "own cells" and "different cells" serve for distinguishing different VCCs which can be mapped to the same entry. However, Soirinsuo et al. from a similar field of endeavor disclose wherein the fields "own cells" and "different cells" serve for distinguishing different VCCs which can be mapped to the same entry (see Figure 4, column 9 lines 52-59). Thus, it would have been obvious to one ordinary skill in the art at the time of invention was made to include Soirinsuo et al. mapping scheme into Calvignac et al. and Nishino et al. packet discard scheme. The method can be implemented in a table. The motivation of doing this is to map packets of different virtual circuit connections (see column 3 lines 56-59).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MOHAMMAD ANWAR whose telephone number is (571)270-5641. The examiner can normally be reached on Monday-Thursday, 9am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derrick W. Ferris can be reached on 571-272-3123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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